

AMENDMENTS

In the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application.

1. (Currently Amended) A high-resistance silicon wafer having resistivity of 100 Ωcm or more, wherein an oxygen precipitate (~~BMD~~) having a size of 0.2 μm or more is formed so as to have density of $1 \times 10^4/\text{cm}^2$ in the wafer, an oxygen concentration in the wafer as measured in accordance with ASTM F-121, 1979 is 12×10^{17} atoms/ cm^3 (~~ASTM F-121, 1979~~) or less, and a carbon concentration is in a range of 0.5×10^{16} atoms/ cm^3 to 1.0×10^{17} atoms/ cm^3 .

2. (Currently Amended) The high-resistance silicon wafer according to claim 1, wherein a density of a LPD (~~Light Point Defect~~) light point defect having a size of 0.12 μm or more and observed on a surface of the wafer is ~~controlled so as to be~~ $0.2/\text{cm}^2$ or less.

3. (Currently Amended) A high-resistance silicon wafer having resistivity of 100 Ωcm or more, wherein a density of a grown-in defect detected by seco etching is $1 \times 10^3/\text{cm}^3$ or less, an oxygen precipitate (~~BMD~~) having a size of 0.2 μm or more is formed so as to have density of $1 \times 10^4/\text{cm}^2$ or more in the wafer, ~~[[and]]~~ an oxygen concentration in the wafer as measured in accordance with ASTM F-121, 1979 is 12×10^{17} atoms/ cm^3 (~~ASTM F-121, 1979~~) or less, and a carbon concentration in the wafer is in a range of 0.5×10^{16} atoms/ cm^3 to 1.0×10^{17} atoms/ cm^3 .

4. (Canceled)

5. (Currently Amended) The high-resistance silicon wafer according to claim 1 or 3, wherein a DZ (~~Denuded Zone~~) denuded zone layer is formed at least 5 μm or more in depth from a surface of the wafer.

6. (Currently Amended) The high-resistance silicon wafer according to claim 1 or 3, wherein ~~value of the~~ oxygen concentration (~~ASTM F-121, 1979~~) of the wafer as measured in accordance with ASTM F-121, 1979 is limited in ranges of 12×10^{17} atoms/ cm^3 or less, 7×10^{17} atoms/ cm^3 or less, and 5.8×10^{17} atoms/ cm^3 or less when the resistivity of the wafer is not less than 100 Ωcm and less than 300 Ωcm , not less than 300 Ωcm and less than 2000 Ωcm , and not

less than 2000 Ωcm , respectively.

7. (Currently Amended) A ~~manufacturing~~ method of manufacturing a high-resistance silicon wafer, ~~characterized in that~~ comprising:

providing a primary silicon wafer in which resistivity is 100 Ωcm or more, oxygen concentration as measured in accordance with ASTM F-121, 1979 is 12×10^{17} atoms/ cm^3 (ASTM F-121, 1979) or more, and a carbon concentration ~~[[is]]~~ in a range of 0.5×10^{16} atoms/ cm^3 to 1.0×10^{17} atoms/ cm^3 ~~or more~~ is used, and

producing the high-resistance silicon wafer in which a remaining oxygen concentration in the wafer is controlled to be 12×10^{17} atoms/ cm^3 as measured in accordance with ASTM F-121, 1979 (ASTM F-121, 1979) or less by performing a heat treatment for forming an oxygen precipitate nucleus and a heat treatment for growing the oxygen precipitate on the primary silicon wafer.

8. (Currently Amended) A ~~manufacturing~~ method of manufacturing a high-resistance silicon wafer, ~~characterized in that~~ comprising:

providing a primary silicon wafer in which resistivity is 100 Ωcm or more, an oxygen concentration as measured in accordance with ASTM F-121, 1979 is 14×10^{17} atoms/ cm^3 (ASTM F-121, 1979) or more, a carbon concentration in the wafer is controlled to be in a range of 0.5×10^{16} atoms/ cm^3 to 1.0×10^{17} atoms/ cm^3 , and a density of a grown-in defect detected by seco etching is $1 \times 10^3/\text{cm}^3$ is used, a remaining oxygen concentration in the wafer as measured in accordance with ASTM F-121, 1979 is controlled to be 12×10^{17} atoms/ cm^3 (ASTM F-121, 1979) or less by performing a heat treatment for forming an oxygen precipitate nucleus and a heat treatment for growing the oxygen precipitate on the primary silicon wafer.

9. (Currently Amended) The ~~manufacturing~~ method of ~~the high-resistance silicon wafer~~ according to claim 7 or 8, wherein the heat treatment for forming the oxygen precipitate nucleus is a low-temperature heat treatment performed at 500 to 900°C for 5 hours or more.

10. (Currently Amended) The ~~manufacturing~~ method of ~~the high-resistance silicon~~

wafer according to claim 9, wherein the conditions of the low-temperature heat treatment is at 700 to 900°C for 5 hours or more.

11. (Currently Amended) The ~~manufacturing method of the high-resistance silicon wafer~~ according to claim 7 or 8, wherein the heat treatment for growing the oxygen precipitate is a high-temperature heat treatment performed at 950 to 1050°C for 10 hours or more.

12. (Currently Amended) The ~~manufacturing method of the high-resistance silicon wafer~~ according to claim 7 or 8, ~~characterized in that~~ further comprising performing an oxygen outward diffusion heat treatment is performed on the wafer at 1100 to 1250°C for 1 to 5 hours before the heat treatment for forming the oxygen precipitate nucleus.

13. (Currently Amended) The ~~manufacturing method of the high-resistance silicon wafer~~ according to claim 12, ~~characterized in that~~ further comprising performing the oxygen outward diffusion heat treatment is performed in a gas atmosphere containing nitrogen gas.

14. (Currently Amended) The ~~manufacturing method of the high-resistance silicon wafer~~ according to claim 12, ~~characterized in that~~ wherein the oxygen outward diffusion heat treatment is performed in an atmosphere of a hydrogen gas, argon gas or mixed gas of ~~these~~ thereof.

15. (Currently Amended) The ~~manufacturing method of the high-resistance silicon wafer~~ according to claim 7 or 8, ~~characterized in that~~ further comprising performing a rapid thermal annealing process is performed on the wafer before the heat treatment for forming the oxygen precipitate nucleus.

16. (Currently Amended) The ~~manufacturing method of the high-resistance silicon wafer~~ according to claim 15, wherein the ~~conditions of the~~ rapid thermal annealing process is carried out at 1150 to 1300°C for 1 to 60 seconds in an atmosphere containing nitrogen.

17. (Canceled)